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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,729	08/28/2003	Koichi Shimizu	826.1891	5709
21171	7590	03/24/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			BETZ, BLAKE E	
			ART UNIT	PAPER NUMBER
			2672	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/649,729	<b>Applicant(s)</b> SHIMIZU, KOICHI	
	<b>Examiner</b> Blake E. Betz	<b>Art Unit</b> 2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 25 is objected to because of the following informalities: an unnecessary question mark in parentheses is included at the end of the first line of the claim.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 5, 9 – 13, 17 – 21, and 25 – 27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,894,308 to Isaacs.

Claims 1, 9, and 17 are disclosed by the invention of Isaacs. Isaacs teaches of a method, system, and program for altering the number of polygons used to create a 3D graphic object such that a simplified model of the original complex 3D object is created. Column 5, lines 8 – 17, describes a computer setup for running software that allows a user to view and create 3D objects. Lines 20 – 24, state, “The Polygon Reduction Editor is a tool that allows a user (or 3D content developer) to reduce the polygon count within models of 3D graphic objects in an interactive and real time manner.” Lines 31 – 34 further describe the program of Isaacs as being embodied as a graphical user interface. Thus, Isaacs teaches that his invention includes a method, apparatus, and program for altering the number of polygons used to create a 3D graphic object.

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Column 7, lines 13 – 20, describes the six techniques for reducing the polygon count in a 3D object in the invention. Lines 21 – 26 state, “The latter four techniques (3-6) each may be used separately or together in various combinations of two or more. In addition, these four techniques may be used in conjunction with either or both of two additional features--(a) locking user-selected points in the 3D graphic object and (b) conserving surface boundary edges in the 3D graphic object.” Thus, points from the detailed shape are selected. Lines 38 – 54 describe generating triangular planes to represent the 3D object that are configured in part by apex points of the 3D object in each of the three dimensions. Thus, select points on the 3D object are used to generate a plane in the bounding box or octahedron techniques as described by Isaacs. Figures 5 and 6 show a model generating window in which a simplified model corresponding to a detailed 3D object is created composed of the apex points that indicated the generated triangular planes.

Isaacs teaches of the invention of claims 2, 10, and 18. Column 5, lines 51 – 54, describes the use of a mouse pointer in the system, “Typically, a cursor control device such as a mouse is used to manipulate widgets 407-449 although any other input device could be used for this purpose.” Column 7, lines 21 – 27, teaches of locking user-selected points in the 3D object. Column 10, lines 30 – 37, further describes the use of the mouse to select the user-selected points for locking purposes, “When it is desired to use the Lock/Unlock Points feature to reduce the number of triangles in the 3D image, the user clicks on the Lock/Unlock Points button 411 thereby causing a mark 701 to appear in the box indicating that the feature is active, as shown in FIG. 15a.

Using the cursor or other input device, the user then selects one or more strategic points in the 3D object that, when preserved, maintain the integrity of the image.”

Isaacs discloses the invention of claims 3 – 5, 11 – 13, and 19 – 21 in column 7, lines 9 – 12. “Although 3D objects in the Polygon Reduction Editor are modeled using only triangles, the techniques described here may be applied to any other class or combination of classes of polygons (e.g., rectangles) to achieve similar results.” Thus, Isaacs teaches that the simplified model may be configured by a plurality of polygons such as triangles or quadrangles.

Isaacs teaches of the invention of claims 25, 26, and 27. Column 7, lines 38 – 54, describe generating triangular planes to represent the 3D object that are configured in part by apex points of the 3D object in each of the three dimensions. Lines 21 – 27 teach of conserving surface boundary edges of the original 3D graphic object. Furthermore, Column 8 teaches of a process in which edges of the original object are preserved or discarded based on length. Thus, the simplified model is created using data composed of data of selected points, lines connecting the points, and therefore data of a plane described by the points and lines.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7, 14, 15, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,894,308 to Isaacs in view of U.S. Patent No. 6,072,498 to Brittain et al.

Isaacs teaches of the invention of claims 6, 14, and 22 except wherein a simplified model configured by selected points is displayed in a display region different from the detailed shape. Column 10, lines 25 – 43, teach of selecting points on a display screen on which a detailed 3D object is displayed. Column 12, lines 64 – 67, and column 13, lines 1 – 14, discloses a viewing button such that when selected, the user is able to alter the viewpoint of the 3D object through mouse movements and button clicking techniques. The invention of Brittain et al. teaches of a user selectable degradation technique for creating a simplified model of a complex object. Figures 4a – 4d teach of displaying different views of a graphical object in separate windows. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Isaacs to include displaying different viewpoints of the 3D object in separate windows as in Brittain. One would have been motivated to make such a modification to the invention of Isaacs so that a user may be able to simultaneously view the alternate viewpoints of the 3D object as offered by Isaacs. Additionally, element 330 shows a selected object in which a simplified model will be created. Figure 4c shows the graphical element with a simplified bounding box surrounding it in the active frame while the other inactive frames show only the simplified bounding box representing the complex object. Column 8, lines 13 – 26, describes rendering objects in a simplified manner in response a reduction in frame rate

due to object manipulation or increased computational load due to background tasks. Thus, the invention of Brittain includes displaying a simplified model in a display region different from the detailed object. Column 5, lines 19 – 23 of Isaacs, describes the polygon reducing invention as being interactive in real time. Column 6, lines 53 – 67, and column 7, lines 1 – 8, describe the real time interactive nature of the invention being diminished if the 3D object under consideration is sufficiently complex. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Isaacs to include displaying the simplified model configured by selected points in a display region different from the detailed 3D object as in Brittain. One would have been motivated to make such a modification to Isaacs such that during computational intensive tasks in the invention of Isaacs the alternative viewpoint images may be temporarily replaced by simplified models, thus reducing the processing required for displaying the alternative views and allowing more processing to be performed on the reduction calculations.

Isaacs teaches of the invention of claims 7, 15, and 23 except wherein the simplified model is overlaid on the detailed shape and displayed. Figure 4c, of Brittain, shows a simplified bounding box model of a complex object in which the simplified model is overlaid on the complex shape and displayed in such a manner that the complex object is still viewable while being overlaid by the bounding box. Thus, the invention of Brittain teaches of drawing a simplified bounding box translucently overtop the complex object. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Isaacs so that the simplified

model was drawn translucently and laid overtop the complex 3D object as in Brittain.

One would have been motivated to make such a modification to the invention of Isaacs so that a user could more easily determine a suitable level of simplification with respect to the original 3D object by comparing the simplified and complex shapes simultaneously in the same frame.

Claims 8, 16, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,894,308 to Isaacs in view of U.S. Patent No. 6,072,498 to Brittain et al. as applied to claims 7, 15, and 23 above, respectively, and further in view of U.S. Patent No. 5,504,853 to Schuur et al.

Isaacs and Brittain, as applied to claims 7, 15, and 23 teach of the invention of claims 8, 16, and 24, respectively, except wherein the simplified model and the detailed shape are displayed in different colors. The invention of Schuur et al. teaches of overlaying a mark on a figure by a user with a specific pattern and color as described in column 7, lines 36 – 55. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Isaacs to include allowing the overlaid simplified model to be drawn with a specific color so as to stand out from its corresponding complex shape as in Schuur et al. One would have been motivated to make such a modification to the invention of Isaacs so that while comparing the two overlaid images, a viewer would be better able to discern between the two models.



### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4,688,181 to Cottrell et al.

U.S. Patent No. 4,994,989 to Usami et al.

U.S. Patent No. 5,146,557 to Yamrom et al.

U.S. Patent No. 5,448,686 to Borrel et al.

U.S. Patent No. 5,805,170 to Burch

U.S. Patent No. 5,828,790 to Kim

U.S. Patent No. 5,995,115 to Dickie

U.S. Patent No. 6,774,905 to Elfving et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blake E. Betz whose telephone number is (703) 605-4584. The examiner can normally be reached on 7:30 - 4:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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